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Putting the Child (Back) into the Study of Language Acquisition

Lois Bloom
Teachers College, Columbia University

Abstract

A cold wind has blown down from the Northeast, casting a chill on the study of language acquisition: In research driven by adult linguistic theory and, in particular, the linguistic theories of MIT, it is a ***device*** that acquires a language, not a child, and language is separate from the rest of cognition and human development. The purpose of my presentation will be to 'put the child back into the study of language acquisition' by showing how language is integrated with other behaviors as the development of language connects with other aspects of children's development. I begin with a brief review of how the focus shifted from a child to a device in the last generation of language acquisition research and theory. I then present a developmental model of language acquisition based on the young child's intentionality (Bloom, 1993a, 1997, Bloom & Beckwith, 1987) and use the model to interpret results from some current research. The research findings show how children's language connects with their affective, social, and other cognitive behaviors--both in the real time of everyday events and the developmental time encompassed by the 2nd year of life. The conclusions are that language is not special and is notseparate from the rest of a child's life and development. Therefore, theories of language acquisition that do not consider the larger developmental context in which language develops cannot be truly explanatory.

I spent the middle years of the 1960s doing the research for a doctoral dissertation on the importance of context and meaning for language acquisition. At one point, as an advanced graduate student, I was invited to present my findings to a faculty seminar at Columbia. They were a distinguished group of men--philosophers, linguists, psychologists--and they listened politely, smiling occasionally, as I enthusiastically told them about meaning in children's language. When I finished, I was asked, somewhat incredulously and not a little condescendingly, how could I ever hope to say anything about the meanings of children's early speech when: "half the time we don't even know what adults mean by what they say!" With my back to the wall, I patiently argued my case for studying meaning. I don't know if I won many converts in that room, but soon after my thesis was published (Bloom, 1970), it went up like the proverbial Roman candle. *Meaning,* was suddenly a hot_topic in child language research--after having been virtually ignored in the generations before.

Nowadays, the importance of meaning for language acquisition is taken for granted--a part of the Zeitgeist that no one seriously disputes. However, meaning enters into explanations of children's language in different ways, according to different acquisition theories. In *psychologically* driven theories, meaning in language is intimately related to developments in cognition and conceptual structure--most simply, meaning comes from what a child *knows* about people, objects, and events in the world. However, it is safe to say (and also sad to say) that the psychological and functionalist views are not the ascendant views in language acquisition research today.

Instead, handed down from MIT has come what is, arguably, the most influential linguistic theory of all time. Built into the original theory and its descendent theories since Chomsky (1965) are two things: first, a child--or, more accurately, a genetically determined "language acquisition *device,"* which Chomsky once called "an organ of the mind"--and, second, the explicit goal of explaining how that device goes about its task of acquiring the adult language. Meaning in language is an aspect of a theory of grammar and built into specifically linguistic constraints or biases that purportedly guide a child's language acquisition). Many psychologists have since scrambled to test the theories that the philosophers and linguists of MIT propose for explaining language acquisition. But in the world according to MIT, it is a *device* that acquires language, not a child--and certainly *not* a child with feelings and thoughts about other persons, a child engaged in dynamic real-life events, a child learning to think about a world of changing physical and psychological relationships, and, most importantly, a child poised to act, to influence, to gain control--in short, a child reaching out and embracing the learning of language for the power of expression in provides. Instead, in the world according to MIT, the study of language acquisition is disembodied and decontextualized.

The perspective from linguistic theory is that certain basic principles and parameters for acquiring a language are already built into the brain at birth--they are required by the language acquisition device to account for those aspects of grammar common to all the world's languages. In linguistically motivated research, children's early behaviors fit the abstract

vagaries of the linguistic rules that are prescribed by the theory for generating sentences, not the language behaviors available to the child in the input.

In contrast, the psychological perspective is based on the assumption that language development depends on the mutual influence among many aspects of development--that it is a *child,* not a device, that acquires a language. Children converge on the forms and functions of adult language behaviors from the beginning--although they may deviate from them in systematic ways. I'll cite two examples of the tension between these two, very different views of how a child acquires a language: children's early sentences without sentence-subjects and the acquisition of negation. I use these examples, in particular, because the theoretical issues surrounding them were first introduced in my earliest research (Bloom, 1970), and both examples continue to be actively studied and debated today (although not by me), in efforts to support or refute one or another theoretical perspective on language acquisition.

Subjectless Sentences

Sentence subjects are required in a grammar of English, but the early sentences of children learning English very often occur without them, for example, little sentences like "read book," "ride train," and "no fit." Even after a child begins to say sentences *with* subjects, like "man making muffins" and "this go there," sentences without subjects continue to occur. In *linguistic theory,* whether sentences have subjects or not is a "parameter" in the universal grammar and built into the language acquisition device. The sentence-subjects parameter is not set at birth but gets turned 'on' or 'off' as a result of encounters with relevant exemplars in the input, according to whether sentence-subjects happen to be required or not in a particular language. The linguistic explanation of sentences wit4out subjects is that they are the early behavioral manifestation of an innate parameter of universal grammar in the language acquisition device, waiting to be switched on. (e.g., Hyams, 1986.)

However, as this audience might have guessed, there are several psychological, developmentally based explanations of *why* young children might frequently leave out the subject of a sentence--explanations that build on the basic observation that very young children are *limited* in the amount of information they can handle at one time. The explanation I originally offered in 1970 has recently been confirmed in a number of studies by others--each of which, of course, putting a different spin on it (e.g., P. Bloom, 1990; Bosler, 1997; Boyle & Gerken,1997). But the basic theory is that what children *can say* depends on what they know about the language, but what they know about the language interacts with their other processing abilities and capacities to influence what they *do say.*

For example, among other things, recalling words that are newly learned and so less automatic than well-known words, or adding negation or some other complexity to a sentence, or having to meet certain conversational demands compete for the young child's essentially limited resources, and something has to give. Thus, sentences with negation are shorter than affirmative sentences and lack sentence subjects initially, because negation in a sentence 'costs' the child extra cognitive effort. But the converse is also true: Sentence subjects are facilitated

and more likely to occur when, for example, children use words they know relatively well and can recall more easily, and do not add syntactic complexity (Bloom, Miller, & Hood, 1975). Thus, early sentences are systematically influenced by a variety of factors that increase or decrease the probability that a sentence will be complete or not. In short, subjectless sentences result from more general cognitive factors rather than from specifically linguistic factors--they are not the manifestation of a parameter in a language acquisition device that gets 'turned on' or not.

Acquisition of Negation

Early negative sentences lack sentence subjects and typically begin with "no," for example, "no fit," and this observation continues to be invoked in theory and research to argue for either a-psychological or linguistic explanation of acquisition. The psychological explanation is that the negative marker "no" and, hence, the scope of the ***meaning*** of negation, are ***internal*** to the sentence and attached to the verb, consistent with the scope of negative meaning in the adult sentences children hear (Bloom, 1970). The challenge comes with sentences in which "no" appears before a sentence subject--examples from my early data included "no Mommy do it," "No, Kathryn playing self." According to ***linguistic theory,*** such sentences display the derivational history of the rules for generating sentences in adult grammar--rules that include an early, preliminary representation of "no" ***external*** to the abstract underlying structure of the sentence, before later movement rules that transport "no" into the sentence (e.g., Deprez & Pierce, 1993). Thus, the linguistic argument is that sentences with "no" before a subject occur in ***early*** child speech, because they correspond to an ***early*** rule in the derivation or generation of the underlying abstract structure of adult negative sentences.

The original analysis I reported in 1970 was an interpretive one. I showed that sentences with "no" before the subject were actually affirmative, and that the proposition expressed in the sentence was ***not*** what was being negated. "No" was anaphoric, meaning that it referred back to negate something either ***said*** previously or something that was otherwise already explicit in the context. [For example, when Kathryn said "No, Kathryn playing self,-" she was asserting her intent to play with her own toys, and opposing the suggestion that she play with different toys--"no" in her sentence negated the prior suggestion, not the predicate "playing self."]

Interpretive analyses reported in other research, since then, have revealed still other ***non-***negative meanings of negation-initial sentences, particularly in certain ***discourse*** contexts, and support my original contention that children do not pass through an early period in which they learn a primitive form of sentence external negation which then drops out (e.g., Keller-Cohen & Gracey, 1979 and, more recently, Drozd, 1996). Nevertheless, there are occasional--very occasional, it turns out--instances in which a child might indeed be doing what the linguists want them to be doing in order to show the correctness of an abstract linguistic analysis, and these are the examples seized on for their argument. So the issue continues to be debated. However, Karen Stromswold did the study I'd been hoping someone would do--she examined over 16,000 children's sentences with "no" or "not" in the Childes database and found ***very***

few instances in which children put the negative before sentence subjects for expressing a negative proposition in a truly negative sentence. The exceptions cited are *not* the rule, but truly exceptions--most likely the random result of production error. She concluded "there is not evidence that children go through an early stage during which negation appears to the left of subject noun phrases" (Stromswold, 1995, p.2).

Subjectless sentences and the form and function of negation in early syntax are but two of the issues dividing researchers of language acquisition--they happen to be two that originated with my own early work. But they are good examples of the tensions between theories driven by the psychology of the child, on the one hand, and by linguistic theories of the adult grammar, on the other. Chomsky's "language acquisition device"--a reductive mechanism in a black box if ever there was one--has since been followed by a serious infatuation with the brain and efforts to explain the functions in the brain responsible for learning and language. However, even if we succeed, with the remarkable advances in brain imaging that are now available, in coming up with a convincing account of the causal connections between brain and behavior, such an account, however impressive, can no more explain how a child acquires language than can the implausible claim Pinker (1994) that language is reducible to a "gene."

Language acquisition can never, in principle, be explained by mechanistic, reductionist theories of language and the brain or the genes, because language is created by a child in the dynamic contexts and circumstances that make up the child's world. Language is learned by a child who is not so much destined to acquire a language, by virtue of genes and brain hard-wiring, as *empowered* to acquire language--for achieving a sense of causal agency and efficacy in the actions and interactions of daily living and becoming a member of society. Children acquire language for its expressive power--for the fundamental fact that language expresses and articulates the contents of mind. But language, by itself, is not special, is not separate from the other aspects of human functioning and development. In short, language is acquired by a child in a personal and physical context, not by a device in the brain.

The goal of the research I've done in the last 15 years, summarized in Bloom (1993) and our current research (Bloom et al, 1997), has been to put the child back into the study of language acquisition. The work has been guided by an explicitly psychological and developmental perspective on language acquisition, a perspective that *begins with the affective, cognitive, and social life of a child, and asks: How is language acquired in the larger context of the child's life?* From this perspective, a theory to explain language acquisition that fails to take into account the larger, developmental context in which language acquisition occurs is fundamentally incomplete.

The Intentionality Model

I have proposed that the core of development bringing an infant to the threshold of language at the end of the first year, and motivating and sustaining language acquisition in the succeeding years, is in the child's *intentionality.* Intentional states are contents of mind under psychological attitudes of belief, desire, and feeling, as described, for example, in the

philosophy of Danto (1973, 1983), Searle (1983), Taylor (1979, 1985), and before them, Brentano (1930/1966). They are dynamically constructed from moment-to-moment in that part of the mind ordinarily referred to as consciousness, and they are crucial to acquiring all forms of human behavior. Development, in general, depends on a process of transaction between these internal representations in intentional states and the external social and physical world (Bloom & Beckwith, 1987).

Thus, intentionality is what the contents of mind are about at any moment in time: representations of objects, roles, and relationships. It is a child's intentional states that language expresses and that result when children interpret the expressions of others. Developments in affect, cognition, and social connectedness to other persons necessarily converge in the expression of a child's intentionality, before language and as language is acquired (e.g., Bloom, 1993a; Bloom, 1997; Bloom et al, 1997). Affect and emotional development are required for motivating engagement and interest in other persons, objects, and events. Social development is required, because the motivation for learning a language comes from the need to connect with, and sustain intersubjectivity with, other persons. Cognitive development is required in order to construct the mental representations in intentional states that language expresses and that result from interpreting the expressions of others. EXPRESSION IS BASIC. Language is learned because it expresses the contents of mind and articulates the elements, roles, and relations in intentional states--making them manifest so that other persons can know them. Thus, the driving force for language development comes from a child's strong impetus for expression and interpretation, in achieving a sense of agency, control, and efficacy, as children endeavor to create and negotiate the circumstances of their lives.

In the intentionality model, languages are learned because children strive to maintain intersubjectivity with other persons--to share what they and others are feeling and thinking. In the first year of life, before language, this intersubjectivity depends on expressions of affect between baby and caregiver. By the end of the first year, affect expression is well developed for sustaining intersubjectivity' but one-year-olds have also had a year of learning about the world. Developments in cognition, social interaction, and emotional understanding in the first year of life contribute to the development of an intentional being--a *person,* with thoughts and feelings that include other persons and objects and events in the world. The result is the representation of mental meanings and emotions that require expression if they are to be shared with other persons, and language not only expresses, it also articulates the contents of intentional states in a way that the forms of affect expression cannot. Language, therefore, has to keep up with the developments of the first three years of life--the developments in cognition, emotionality, and social connectedness that press the child to acquire words and the sentence procedures for expression and interpretation.

Language development, in particular, depends on the connections between world and mind, because words and sentences are connected to referents *in a mind;* words and sentences are not connected to things 'out there' in the world (Faconnier, 1985). Words mediate mind/world transactions: going from *mind to world* for expression--the words a child says articulate what the child has in mind, from *world to mind* for interpretation--the words a child hears change

what the child has in mind to set up new representations. This transaction process between internal representations in intentional states and the external social and physical world is governed by several generalizations I have called the principles of relevance, discrepancy, and elaboration (Bloom, 1993a), and these principles are responsive to different aspects of a child's development.

> *According to the principle of relevance, development is enhanced when events in the context bear upon and are pertinent to what the child has in mind.* The principle of relevance is responsive in particular to a child's affective engagement, interest, and emotional investment in the personal and physical world. The relevance of adult behavior is assured, and behaviors are made accessible for learning, when adults tune into what a child is feeling and thinking.
>
> *According to the principle of discrepancy, development is enhanced when the child acts to resolve a mismatch between what the child has in mind and what is already evident to others in the context.* As infants remember past events and anticipate new events, they have beliefs, desires, and feelings about things which other persons cannot yet know. Children will have to acquire a language when what they have in mind needs to be expressed if it is to be known and shared by others, who cannot exploit clues from the context for understanding. Thus, the principle of discrepancy is responsive in particular to a child's social development and need to sustain intersubjectivity and social connectedness to other persons.
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> *And according to the principle of elaboration, children will have to learn more words and, eventually, procedures for sentences, if they are to express and articulate the increasingly elaborated contents of mind made possible by other developments in cognition and social and emotional understanding.* The principle of elaboration is responsive to a child's cognitive development--in particular, to developments in the symbolic capacity and conceptual structure that generate the flow of representations that are the child's intentional states.

The research I've done in the last 15 years has provided support for the principles of relevance, discrepancy, and elaboration in the intentionality model presented in Bloom (1993a). I will cite one example, from our studies of early word learning, in which we showed that the acquisition of a vocabulary in the 2nd year consists of more than simply accumulating words. The data came from a longitudinal study of 12 children from mixed racial, ethnic, and religious backgrounds, whom we saw every month in our laboratory playroom and in their homes, from 9 months to 2 1/2 years. The children acquired increasing numbers of words in the months between their 1st and 2nd birthdays, as we expected they would. But, more than that, and consistent with the principle of discrepancy, they were learning more words to talk about things they *anticipated*--things that were imminent but not yet evident to other persons in the situation. Their words later in the period, at the time of a vocabulary spurt, were more likely to express anticipative meanings than meanings about things already evident. And, in addition, consistent with the principle of elaboration, the

children were also talking more about anticipated *actions* relative to state events--actions being more elaborated than simple states, having more elements, roles, and relations between them.

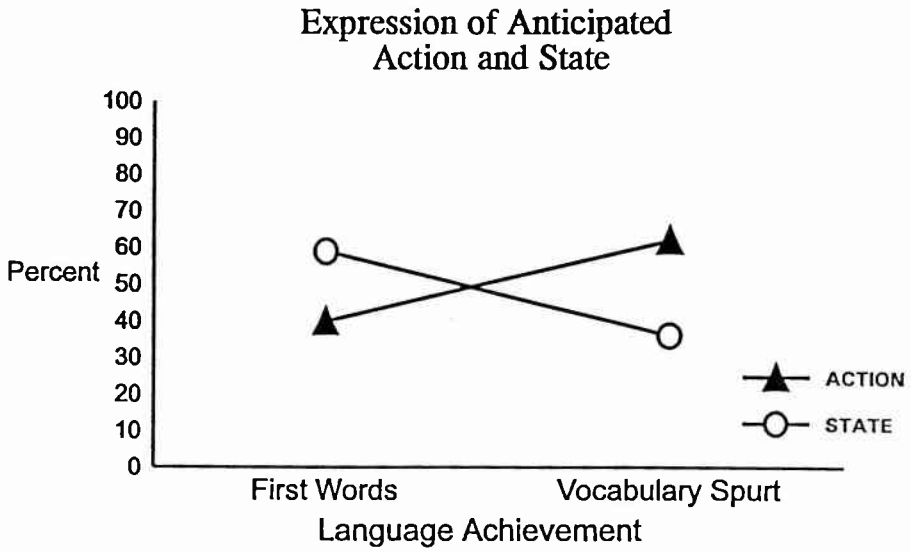

Fig. 1. Children's intentional states about anticipated action or state events attributed to speech during early word learning: at First Words and the time of a Vocabulary Spurt in the 2nd year. Adapted from Bloom, Beckwith, Capatides, and Hafitz (1988) and Bloom (1993a).

Our recent research since has now brought together several aspects of development and examined how emotional, social, and other cognitive behaviors interacted with the children's words in the process of acquisition in the 2nd year (Bloom, Tinker, & Beckwith, 1997). I will show the results of a set of analyses, at a single point in time: the month in which each of the children reached a vocabulary spurt in the 2nd year. Their mean age in these sessions was about 19 months, and they ranged in age from 13 to 21 months. The children were equated, therefore, for level of language acquisition rather than for chronological age for these analyses.

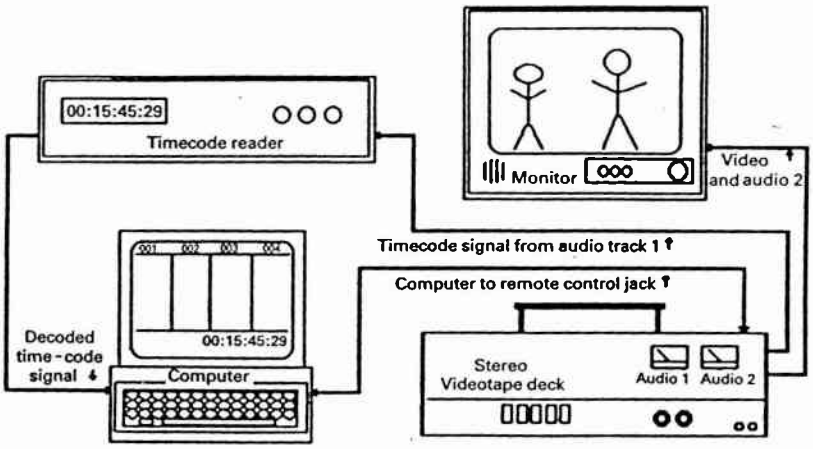

Fig. 2. Coding Station for transcribing speech and coding emotional expression and play, showing the video deck interfaced with a microprocessor via a time stamp reader. Adapted from Beckwith et al (1985) and Bloom (1993b).

We interfaced the video deck with a microprocessor via a time stamp reader for coding and transcribing a number of different behaviors in the data (Beckwith et al, 1985; Bloom, 1993b). We then devised procedures for a form of lag sequential analysis to look at the timing of different behaviors as they occurred together in *real* time, in the course of everyday events. In our most recent studies, we've examined 4 behaviors in particular: child object play (as our window on cognition), and three kinds of expression: child speech, child emotional expression, mother speech (as a window on the social context). After establishing the baseline rates of each of the expressive behaviors, for each child and mother, we then looked at the tendency for one kind of behavior, the lagged behavior, to occur relative to its baseline level of occurrence in the context of a different, target behavior: during the target interval and in the 1-sec intervals before and after the target.

The null hypothesis is shown in Figure 3: If one kind of behavior occurs independently of another kind of behavior, then the lagged behavior should not differ from its baseline rate relative to the target behavior. The horizontal line in Figure 3 represents the baseline rate of the lagged behavior as it occurred in a child's actions and interactions throughout the session. The vertical line represents the time interval, from the onset of the target behavior to its offset. In this hypothetical instance, there is no systematic relationship between the two behaviors: The behavior that is lagged around the interval of the target child behavior does not differ from its baseline rate of occurrence in the entire sample overall.

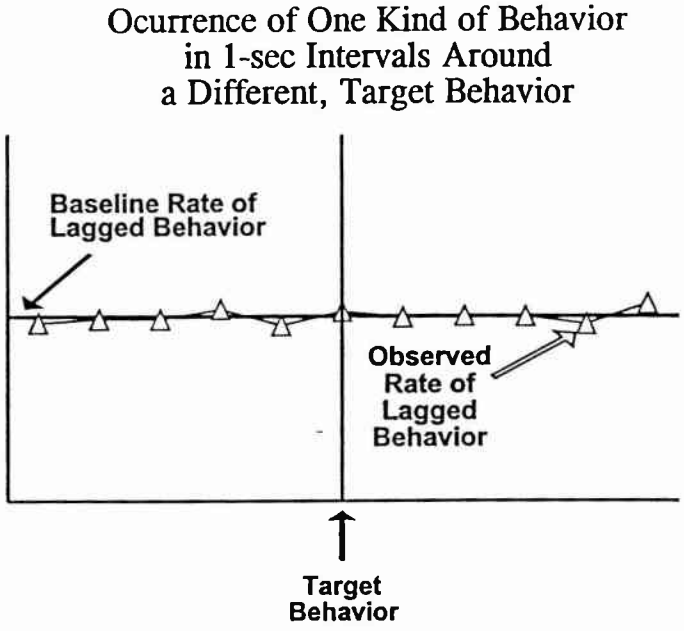

Fig. 3. The Null Hypothesis of Independence: One kind of behavior will not deviate from its baseline rate of occurrence before, during, and after another, different kind of behavior, if the two kinds of behavior are independent of each other. Adapted from Bloom, Tinker, and Beckwith (unpublished manuscript).

If, however, different behaviors occurring within the same window of time are, indeed, expressions of the same underlying intentional states, then the one behavior that is lagged around the other could be expected to deviate from its baseline in a systematic way. We tested a series of such hypotheses relative to the direction and degree of the deviation from baseline of one behavior relative to another, and the results are presented in the figures that follow. [Note: The results shown in these figures have been simplified here for ease of presentation. Deviations from baseline were measured in standard deviation units. The statistical reliability of deviation from baseline was tested using repeated measures analyses of variance, with time from 1-sec before through 2-secs after a target behavior] as the within subject variable and expression [child emotion, child speech, mother speech] as the between subjects variable when more than one behavior was lagged around the same target. Only results significant at the .05 level of confidence or less are shown here. See Bloom, Margulis, Tinker, & Fujita, 1996, for description of these procedures, and Bloom, Tinker, & Beckwith, 1997 for the full results that are represented by the figures presented here).

In the original analysis (Bloom & Beckwith, 1989), we tested the hypothesis that children's emotional expression--positive and negative affective tone--would not deviate systematically from baseline if child emotional expression and speech were independent of each other. The results are schematized in Figure 4. The children's emotional expression and speech were closely associated in time, with a peak in emotional expression relative to baseline rates of emotional expression overall immediately after the child said something.

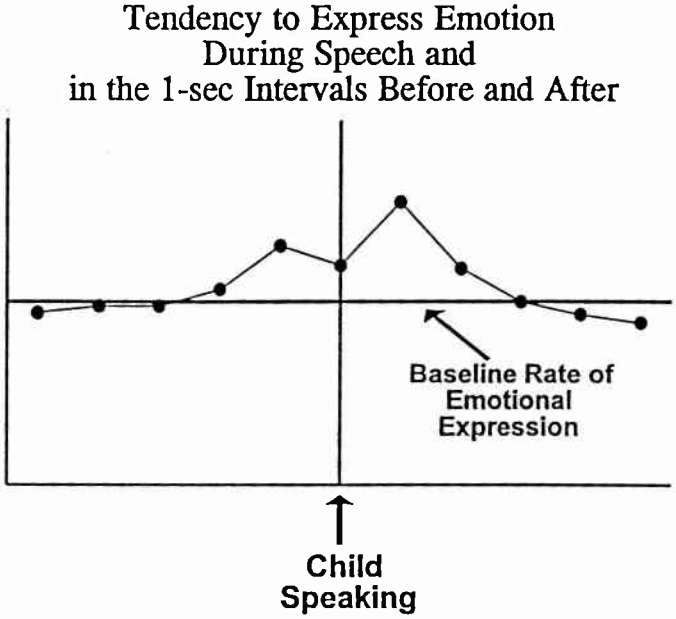

Fig. 4. Expression of emotion before, during, and after children's speech relative to the baseline rate of expression of emotion overall. Adapted from Bloom and Beckwith (1989) and Bloom (1993a).

We interpreted these results to mean that, in general, children are learning to talk about those things that are *relevant* to them. But this analysis did not take into account anything else that was happening or going on at the same time. The next analysis, therefore, looked at the relationship in real time between children's expressing emotion and playing with objects--in particular, when they constructed thematic relationships between objects, like putting a bead on a string or a doll in a car.

Emotional expression was suppressed when children were engaged in constructing activities with the objects in play. We concluded therefore, that children express neutral (non-emotional) affect *to conserve affective and cognitive resources* for the attention and thinking that constructing thematic relations requires. We then examined the relationship between child speech and emotional expression when both occurred in the same window of time as a child's object play.

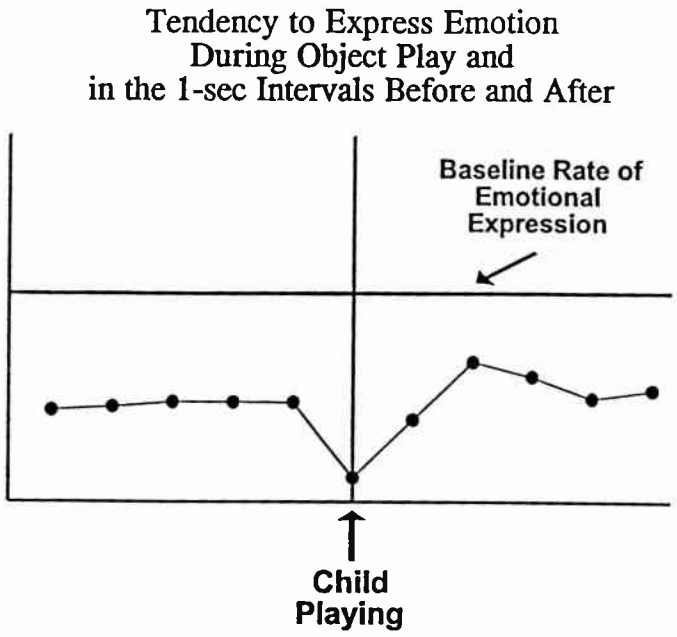

Fig. 5. Expression of emotion before, during, and after children's play with objects (constructing activities) relative to the baseline rate of expression of emotion overall. Adapted from Bloom, Tinker, and Beckwith (unpublished manuscript).

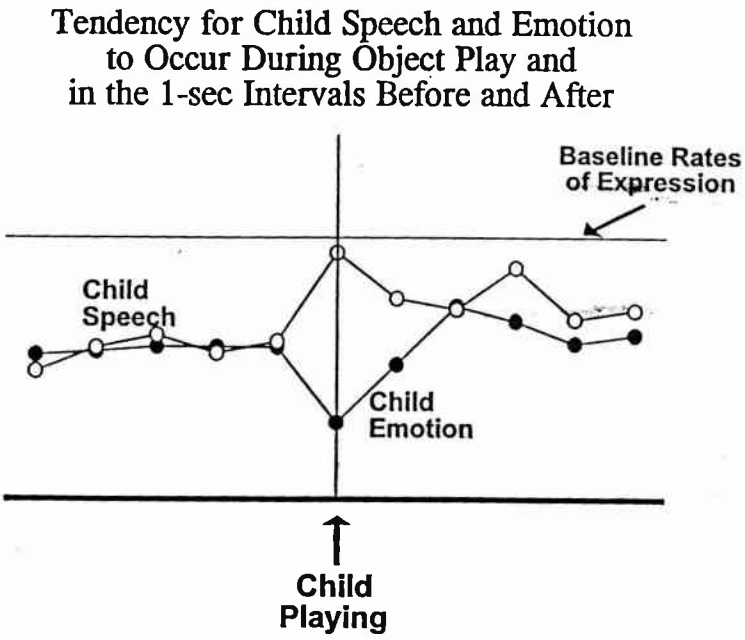

Fig. 6. Children's speech and expression of emotion before, during, and after play with objects (constructing activities) relative to the respective baseline rates of child speech and emotional expression overall. Adapted from Bloom, Tinker, and Beckwith (unpublished manuscript).

Child speech was also suppressed around object play. Even though speech and emotional expression were, in general, closely related in time (Figure 4), there was a "trade-off" between the two forms of expression when children were engaged in the construction activities: The children were more likely to talk about what they are doing than to express emotion. Relative to their respective baselines, emotional expression decreased when child speech increased. This result supported our earlier conclusion that children need to conserve resources during object play. Finally, we added mothers' speech to the analysis, to see what the children's mothers were doing in these intervals, and how mothers' speech interacted with child speech, child emotion, and object play.

Mothers' Speech, Child Speech, and Child Emotion
During Object Play and
in the 1-sec Intervals Before and After

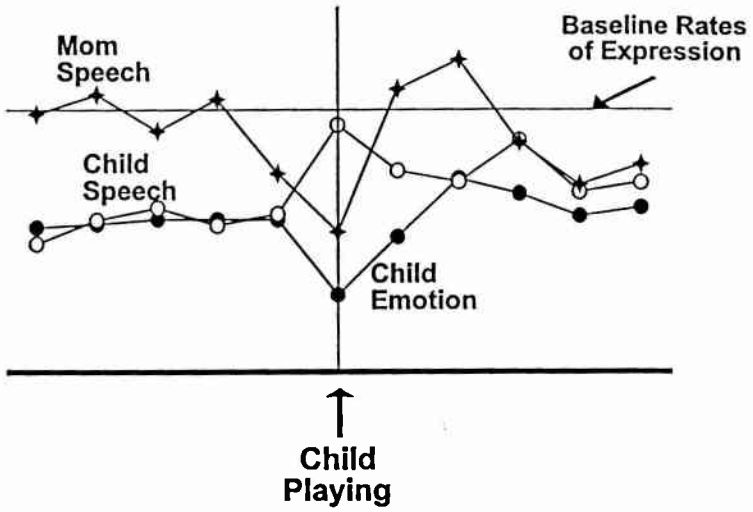

Fig. 7. Mothers' speech, child speech, and child emotional expression before, during, and after play with objects (constructing activities) relative to the respective baseline rates of mother speech, child speech, and child emotional expression overall. Adapted from Bloom, Tinker, and Beckwith (unpublished manuscript).

Mothers were most likely to talk after a child's object play, and least likely to be talking during the interval of play, relative to their baseline rates of talking overall. Mothers' speech was also most likely to occur after child speech, and least likely to occur at the same time (consistent with the result reported for their conversations generally by Bloom, Tinker, & Margulis (1996). Thus, the mothers were primarily *responsive* to both their children's play and speech, letting the child take the lead. However, mother speech and child emotional expression were synchronized with each other, showing the same pattern over time.

Clearly, children's behaviors and the behaviors their mothers direct to them are not independent of each other. The results of these studies validate the major assumption of the classic 'developmental point of view' attributed to Heinz Werner: "Every behavioral act, whether outward bodily movement or internalized cognitive operation, gains its significance and status in terms of its role in the overall functioning of the organism" (Werner & Kaplan, 1963, pp. 4-5). Paradoxically, while'the 'developmental point of view' has been largely taken for granted and tacitly assumed, it is nevertheless ignored by much of mainstream psychology. Instead, research and theory have become increasingly fragmented into separate domains of inquiry (see Glick, 1994). As a result of emphasizing only one or another aspect of development in efforts to explain it, language, cognition, emotion, and socialization have come to be categorized as domains or modules of human functioning, as reflected in the titles of our scholarly organizations and publications. But these behavioral functions are mutual influences and depend on each other in development--they are not discrete categories for the young child. Just as developments in other aspects of cognition or emotion or social interaction do not happen apart from each other or apart from language, acquiring language does not happen apart from them.

Conclusions

This talk began with a description of the contrast between two different perspectives on language acquisition research--one, the perspective from linguistics theory, which claims that language is special and attributable to a language acquisition *device.* The other, the psychological perspective, in which language is not separate from the rest of development and is acquired by a ***child*** in a social and physical context. I've concluded by showing that language does not occur independently of other behaviors--any more than other actions or emotional expression happen apart from language--in the course of everyday events. Language development, tlierefore, cannot be separate from the larger developmental context in which it occurs--affective, social, cognitive, and linguistic processes influence each other for a child's actions and interactions in the world. The three principles of my intentionality model--the principles of relevance, discrepancy, and elaboration--are responsive to these different aspects of development. *Affect* promotes engagement with the physical and personal world and determines the *relevance* of what is worth learning. *Social* developments press the child to learn a language in order to share contents of mind that are *discrepant* from what is already available to other persons in the context. Developing *cognition* yields the symbolic capacity and conceptual structure in the knowledge base for the increasingly *elaborated* representation$. in consciousness that language expresses, arid that result from interpreting the expressions of others.

The influences on language development, as on all of development, originate in the child's *intentionality--originate* with the representations in intentional states that are constantly changing: changing in immediate time, as a function of the child's actions and interactions, and changing over extended time, as a function of development. Language influences the process as much as it is influenced by it, and all aspects of development come together in its

acquisition. In contrast, when we put ***all*** the effort of explanation into only the words and linguistic structures of the adult language the child needs to learn, the result is a loss of perspective on the *psychology of the child.* It is also a loss of perspective on the *language* itself and the power of expression it provides.

References

Beckwith, R., Bloom, L., Albury, D., Raqib, A., & Booth, R. (1985). Technology and methodology. *Transcript Analysis, 2,* 72-75.

Bloom, L. (1993a). *The transition from infancy to language: Acquiring the power of expression.* Cambridge: Cambridge University Press.

Bloom, L. (1993b). Transcription and coding for child language research: The parts are greater than the whole. In J. Edwards & M. Lampert (Eds.), *Transcription and coding methods for language research* (pp. 149-166). Hillsdale, NJ: Erlbaum.

Bloom, L. (1997). Language acquisition in its developmental context. In D. Kuhn & R. Siegler (Eds.), *Cognition, perception, and language* (Vol. II in W. Damon (Series Ed.), *Handbook of child psychology,* New York: John Wiley & Sons.

Bloom, L., & Beckwith, R. (1987). Intentionality and language development. Unpublished, working manuscript.

Bloom, L., & Beckwith, R. (1989). Talking with feeling: Integrating affective and linguistic expression in early language development. *Cognition and emotion, 3,* 313-342.

Bloom, L., Beckwith, R., Capatides, J., & Hafitz, J. (1988). Expression through affect and words in the transition from infancy to language. In P. Baltes., D. Featherman, & R. Lerner (Eds.), *Life-span develqpment and behavior* (Vol. 8, pp. 99-127). Hillsdale, NJ: Erlbaum.

Bloom, L. :Miller, P., & Hood, L. (1975). Variation and reduction as aspects of competence in language development. In A. Pick (Ed.), *Minnesota Symposia on Child Psychology,* (Vol. 9, pp. 3-55). Minneapolis MN: University of Minnesota Press. Reprinted in L. Bloom (1991). *Language development from two to three* (pp. 86-142). Cambridge: Cambridge University Press.

Bloom, L., Tinker, E., & Beckwith, R. (1997). Intentionality in development: Language, emotion, play, and social interaction. Manuscript.

Bloom, P. (1990a). Subjectless sentences in child language. *Linguistic Inquiry, 21,* 491-504.

Bosler, C. (1997). *Processing and parameter setting in language acquisition: A computational approach.* Ph.D. dissertation, University of Connecticut.

Brentano, F. (1966). *The true and the evident.* English edition edited by R. Chrisholm, translated by R. Chrisholm, I. Politzer, & K. Fischer. New York: Humanities Press. Original publication in 1930, Leipzig: Felix Meiner.

Danto, A. (1973). *Analytical philosophy of action.* Cambridge: Cambridge University Press.

Danto, A. (1983). Toward a retentive materialism. In L. Cauman, I. Levi, C. Parsons, & R. Schwartz (Eds.), *How many questions? Essays in honor of Sidney Morgenbesser* (pp. 243-255). Indianapolis, IN: Hackett Publishing.

Deprez, V., & Pierce, A. (1993). Negation and functional projections in early grammar. *Linguistic Inquiry, 24,* 25-67.

Drozd, K. (1996). Child English pre-sentential negation as metalinguistic exclamatory sentence negation. *Journal of Child Language, 23,* 583-609.

Glick, J. (1994). Heinz Werner's relevance for contemporary developmental psychology. In R. Parke, P. Ornstein, J. Rieser, & C. Zahn-Wexler (Eds.), *A century of developmental psychology* (pp. 291-309). Washington, DC: American Psychological Association.

Hyams, N. (1986). *Language acquisition and the theory of parameters.* Dordrecht: Reidel.

Keller-Cohen, D. & Gracey, C. (1979). Learning to say no: Functional negation in discourse. In 0. Garnica & M. King (Eds.), *Language, children, and society* (pp. 197-211). Elmsford, NY: Pergamon.

Pinker, S. (1994). *The language instinct.* New York: Harper Collins.

Searle, J. (1983). *Intentionality: An essay in the philosophy of mind.* Cambridge: Cambridge University Press.

Stromswold, K. (1997). The acquisition of inversion and negation in English: A reply to Deprez and Pierce. Manuscript submitted for publication.

Taylor, C. (1979). Action as expression. In C. Diamond & J. Teichman (Eds.), *Intentions and intentionality, Essays in honor of G. E. M. Anscombe* (pp.73-89). Ithaca, NY: Cornell University Press.

Taylor, C. (1985). *Philosophical papers: Vol. I. Human agency and language.* Cambridge: Cambridge University Press.

Werner, H., & Kaplan, B. (1963). *Symbol formation.* New York: John Wiley & Sons.